

# DR. EVA C. HERBST

## CONFERENCE PRESENTATIONS \* DENOTES CO FIRST AUTHOR, \*\* DENOTES STUDENT I SUPERVISED

- 2025 | **Herbst EC**, Lloyd JE, Roth L\*\*, Moroder P, Ferguson SJ. *Subject-specific shoulder modeling with glenohumeral translation, contact, and muscle-driven kinematics*. Technical Group for Computer Simulation (TGCS), Uppsala. (Talk)
- 2025 | **Herbst EC**, Stettler F\*\*, Henniger H, Modelhart M, Tanadini M, Ferguson SJ, Moroder P. *Bony parameters and posture show no significant effects on glenohumeral translations in healthy subjects*. European Soc. of Biomech., Zurich. (Talk)
- 2025 | **Herbst EC**, Stettler F\*\*, Henniger H, Modelhart M, Tanadini M, Ferguson SJ, Moroder P. *Gesunde Schultern zeigen ein stabiles Drehzentrum*. D-A-CH Verein. für Schulter- und Ellenbogenchirurgie (DVSE), Zurich. (Talk)
- 2025 | Modelhart M\*\*, **Herbst EC**, Kune AMH, Shekhbihi A, Scheibel M, Moroder P. *Der Unterschied zwischen der knöchernen und globalen Glenoidinklination im Schultergelenk*. D-A-CH Verein. für Schulter- und Ellenbogenchirurgie (DVSE), Zurich. (Talk)
- 2025 | Lappen S, Siegert P, Raiss P, Denard P, Werner B, Griffin J, Shah A, Poltaretskyi S, **Herbst EC**, Moroder P. *Influence of Posture Types and Scapulothoracic Orientation on the Location of Bony Impingement after Reverse Total Shoulder Arthroplasty*. D-A-CH Verein. für Schulter- und Ellenbogenchirurgie (DVSE), Zurich. (Talk). **Winner of Perthes Prize**
- 2024 | **Herbst EC**, Lloyd JE, Sagl B, Ferguson SJ, Moroder P. *Towards patient specific shoulder modeling*. Invited speaker to special session: "Multiscale Modeling Using Combined Multibody and Finite Element Simulation". Comp. Meth. in Biomech. and Biomed. Engineering, Vancouver. (Talk)
- 2024 | **Herbst EC**, Ferguson SJ, Moroder P. *Testing scapulothoracic ellipsoid joint implementations using kinematics from biplanar fluoroscopy*. Annual Meeting of the Swiss Society for Biomedical Engineering (SSBE), Winterthur. (Poster)
- 2024 | **Herbst EC**, Ferguson SJ, Moroder P. *The effect of scapulothoracic ellipsoid joint parameters on marker tracking errors*. European Soc. of Biomech., Edinburgh. (Talk)
- 2024 | Agbanyim D\*\*, Davide C, Ferguson SJ, Moroder P, **Herbst EC**. *Developing and validating a phantomless calibration method for BMD analysis of the glenoid*. European Soc. of Biomech., Edinburgh. (Talk)
- 2024 | Stettler F\*\*, Henniger H, Ferguson SJ, Moroder P, **Herbst EC**. *In vivo glenohumeral translations during arm elevation in healthy subjects*. European Soc. of Biomech., Edinburgh. (Talk)
- 2024 | **Herbst EC**, Agbanyim D\*\*, Davide C, Ferguson SJ, Moroder P. *Bestimmung der Knochendichte des Glenoids mit einer neuen phantomlosen CT-Kalibrierungsmethode*. D-A-CH Verein. für Schulter- und Ellenbogenchirurgie (DVSE), Dusseldorf. (Talk)
- 2024 | Moroder P, **Herbst EC**, Pawelke J, Lappen S. *Large Variations In The Degree Of Constraint Of Reverse Total Shoulder Arthroplasty Liners Between Different Implant Systems*. SECEC (European Society for Surgery of the Shoulder and Elbow), Munich. (Talk). Abstract published in [JSSES International](#) pg. P1341.
- 2023 | Bastiaans D\*\*, **Herbst EC**, van de Kamp T, Zuber M, Scheyer TM. *The first 3D cranial and myological reconstruction of the highly flattened remains of Askeptosaurus italicus (Diapsida: Thalattosauriformes)*. International Society for Vertebrate Morphology. Cairns, Australia. (Poster)

- 2021 | Evans LAE\*, **Herbst EC\***, Felder AA, Ajami S, Jahaveri B, Pitsillides AA. *Do age-related differences in healthy and osteoarthritic mouse tibias show future imaging biomarkers?* Anatomical Society Summer Meeting, Glasgow. Abstract published in [Journal of Anatomy](#). (Talk)
- 2021 | **Herbst EC**, Lautenschlager S, Fioritti N, Meade L, Scheyer TM. 2021. *Modelling muscle volumes for finite element analysis and multibody dynamics*. XVIII International Symposium on Computer Simulation in Biomechanics. Online. (Talk)
- 2021 | Webb NM, Fornai C, Krenn VA, **Herbst EC**, Haeusler M. 2021. *A tight squeeze for chimpanzees: the role of joint laxity and fetal head orientation during birth*. European Society for the Study of Human Evolution. Online. Abstract published in [PaleoAnthropology](#), pg. 270. (Talk)
- 2021 | Evans LAE\*, **Herbst EC\***, Felder AA, Ajami S, Jahaveri B, Pitsillides AA. *Do 3D epiphyseal bone architectural changes in ageing STR/Ort and healthy mice reveal early imaging biomarkers of osteoarthritis?* Bone Research Society Annual Meeting. Online. (Talk.) **Winner of New Investigator Award**. Abstract published in [JMBR Plus](#), pg. 6
- 2021 | **Herbst EC**, Eberhard E, Manafzadeh AR, Richards C, Hutchinson JR. *New methods support the possibility of a salamander-like walk in the Permian tetrapod Eryops*. Society for Integrative and Comparative Biology Annual Meeting, Online. (Talk). **Winner of D. Dwight Davis Award**
- 2021 | **Herbst EC**, Bastiaans D\*\*, Miedema F, Scheyer TM, Lautenschlager S. 2021. *How important is modeling tooth enamel in FEA comparisons of whole skulls? Comparing common simplifications with biologically realistic models*. Society for Integrative and Comparative Biology Annual Meeting, Online. (Poster)
- 2021 | Bastiaans D\*\*, **Herbst EC**, Scheyer TM. *Bringing fossils back to life: 3D cranial reconstructions of the highly flattened remains of thalattosauriformes*. Society for Integrative and Comparative Biology Annual Meeting, Online. (Talk)
- 2020 | **Herbst EC**, Eberhard E, Manafzadeh AR, Richards C, Hutchinson JR. 2020. *Was the early tetrapod Eryops capable of a salamander-like walk? Developing new methods to test paleontological hypotheses about posture and gait*. Swiss Geosciences Meeting, Online. (Talk). **Winner of Swiss Commission of Palaeontology Prize**
- 2020 | **Herbst EC**, Felder AA, Evans LAE, Jahaveri B, Ajami S, Pitsillides AA. *A new automated method of segmenting trabecular bone: investigating subchondral trabecular changes as a predictor of osteoarthritis at the joint surface*. Bone Research Society Annual Meeting, Online. (Poster). Abstract published in [JMBR Plus](#) pg. 51
- 2020 | **Herbst EC**, Eberhard E, Richards C, Hutchinson JR. *Comparing in vivo and ex vivo knee range of motion in salamanders: a new method for investigating joint mobility*. CAMS-Knee OpenSim Workshop, ETH, Zürich. (Poster)
- 2020 | Bastiaans D\*\*, **Herbst EC**, Scheyer TM. *Re-fleshing fossils: cranial reconstructions of thalattosauriformes*. Swiss Geosciences Meeting, Online. (Talk)
- 2020 | Bastiaans D\*\*, **Herbst EC**, Webb NM, Haeusler M, Scheyer TM. *3D Data, a gateway to open science: the FEZ initiative*. OILS (Open Innovation in Life Sciences), Online. (Talk)
- 2020 | Bastiaans D\*\*, **Herbst EC**, Scheyer TM. *Virtual paleontology: a modern look at ancient material*. OILS (Open Innovation in Life Sciences), Online. (Talk)
- 2020 | Bastiaans D\*\*, **Herbst EC**, Scheyer TM. *Thalattosauriformes: schedelreconstructies van Triassische weirdos*. NKVP (Nederlandse Kring van Vertebraten Paleontologen), Online (Talk).
- 2019 | **Herbst EC**, Eberhard EA, Richards CT, Hutchinson JR. 2019. *A new method for investigating joint mobility and its relevance for inferring locomotor evolution in early tetrapods*. 12th International Congress of Vertebrate Morphology, Prague, Czech Republic, abstract [here](#). (Talk)

- 2018 | **Herbst EC**, Doube M, Smithson TR, Clack J, Hutchinson JR. *Paleopathologies in Carboniferous tetrapods and the evolution of bone healing*. Society of Vertebrate Paleontology, 78th Annual Meeting, Albuquerque, New Mexico. (Poster)
- 2018 | CM Holliday, **Herbst EC**, M Jacoby, A Smolinsky, K Sellers. *Morphometric and modeling approaches to understanding the evolution of pseudosuchian mandibular symphyses*. Society of Vertebrate Paleontology, 78th Annual Meeting, Albuquerque, New Mexico. (Talk)
- 2018 | **Herbst EC** 2018. *New elements discovered in the early tetrapod Crassigyrinus scoticus*. DVM SICB Regional Meeting, Natural History Museum, London. (Talk)
- 2018 | **Herbst EC**, Smithson TR, Clack J, Doube M, Hutchinson JR. *Bony lesions in early tetrapods and the evolution of bone healing*. Society of Integrative and Comparative Biology Annual Meeting, San Francisco. (Talk)
- 2017 | **Herbst EC** and Hutchinson JR. *New insights into the morphology of the Carboniferous tetrapod Crassigyrinus scoticus gleaned from computer tomography*. The Early Tetrapod World: a one-day conference celebrating the career of Prof Jenny Clack FRS. University of Cambridge. (Invited Conference Talk)
- 2017 | **Herbst EC**, Smithson TR, Clack J, Hutchinson JR 2017. *Pathology in the early tetrapod Crassigyrinus scoticus*. Progressive Palaeontology Annual Meeting, University of Leicester. (Talk)

## INVITED TALKS AND WORKSHOPS

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- 2024 | *Developing Patient Specific Biomechanical Shoulder Models*. Schulthess Clinic Research Seminar
- 2021 | *Computational tools to investigate 3D form and function in extinct and extant taxa*. Palaeontology Discussion Group Seminar Series, University of Bristol, UK.
- 2021 | *Reconstructing feeding function in Triassic reptiles: computational methods for biomechanical analyses*. Public Colloquium Series, Palaeontological Institute and Museum, University of Zurich, Switzerland.
- 2021 | *Workshop: Trabecular bone segmentation*. Senckenberg Museum and Research Institute, Frankfurt, Germany. [Recording available on Youtube](#).
- 2021 | *Motion capture and computational approaches to investigate joint range of motion* Palaeontology Discussion Group, University of Birmingham, UK.
- 2021 | *Workshop: How to clean 3D meshes in Blender FunkyMUG* (Functional Morphology Users Group). [Recording available on Youtube](#).
- 2021 | *New methods support the possibility of a salamander-like walk in the Permian tetrapod Eryops*. Comparative Zoology Lab, Humboldt University Berlin & Natural History Museum Berlin, Germany.
- 2020 | *Investigating joint range of motion in salamanders and early tetrapods*. Evolutionary Morphology and Biomechanics Group, University of Liverpool, UK.
- 2019 | *Computational analysis of the evolution of amphibian locomotor modes*. Postgraduate Research Day, Final Year PhD Session, Royal Veterinary College, London.
- 2017 | *Functional morphology of Crassigyrinus scoticus: gaining insight into locomotor evolution in early tetrapods*. Postgraduate Research Day, Royal Veterinary College, London. (Poster)
- 2017 | *Computational analysis of the evolution of amphibian locomotor modes*. Postgraduate Seminar Series, Royal Veterinary College, London.

## TEACHING AND SUPERVISION

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SUPERVISION	<ul style="list-style-type: none"><li>• <b>Liam Roth</b>, Master's Semester Project: Cartilage Morphology Effects in Patient Specific Biomechanical Finite Element Glenohumeral Joint Models, ETH Zurich (2024)</li><li>• <b>Jan Heres</b>, Master's Thesis: Reconstruction of a patient-specific model of the humerus bone. University of West Bohemia (acting as external supervisor) (2024)</li><li>• <b>Dennis Agbanyim</b>, Master's Thesis: Bone Density Calibration, ETH Zurich (2024)</li><li>• <b>Flavia Stettler</b>, Semester Project: Humeral Translations, ETH Zurich (2024)</li><li>• <b>Dylan Bastiaans</b>, PhD Thesis: Digital Palaeontology and Biomechanics, UZH (2019-2023)</li><li>• <b>Kehan Pan</b>, Semester Project: Skull FEA, ETH Zurich (2022)</li></ul>
TEACHING	<ul style="list-style-type: none"><li>• <b>Lecture for Master's Course "Clinical Challenges in Musculoskeletal Disorders": <i>Current Research in Shoulder Biomechanics</i></b>. ETH. 2024 + 2025</li><li>• <b>Lectures Bio 262 &amp; 267: <i>Using Computer Tools to Investigate Biomechanics of Animals</i></b>. University of Zurich. 2020-2022.</li><li>• <b>Bio 262: Evolutionary Morphology of Vertebrates: Issues and Methods</b>. Role: leading and designing anatomy practicals. University of Zurich. 2021,2022</li><li>• <b>Bio 267: Paleobiology and Evolution of Vertebrates</b>. Role: leading and designing anatomy practicals. University of Zurich. 2021,2022</li><li>• <b>Comparative Animal Locomotion Course</b>. Role: leading research paper seminar. Royal Veterinary College, London. 2017, 2018.</li></ul>